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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/116,395 07/16/98 OBSZARNY C FI9-97-288

DELIO & PETERSON
121 WHITNEY AVENUE
NEW HAVEN CT 06510

MM91/0320

EXAMINER

KIM, P

ART UNIT

PAPER NUMBER

2851

DATE MAILED:

03/20/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/116,395

Applicant(s)

Obszarny

Examiner

PETER KIM

Group Art Unit

2851

☒ Responsive to communication(s) filed on Feb 11, 2000

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-9, 17, and 18 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-9, 17, and 18 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

— SEE OFFICE ACTION ON THE FOLLOWING PAGES —

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DETAILED ACTION

1. Applicant's arguments filed on 2/11/00 (paper #9) have been fully considered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In Claims 1 and 7, "the optical transmission" and "the contrast" lack proper antecedent basis.

The remaining claims, not specifically mentioned, are rejected for incorporating the defects from the base claim by dependency.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claims 1, 2, 4, 5, 7-9, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiu in view of Tanabe.

Chiu discloses an apparatus for exposing a substrate with a light source (ref. 122) a photomask (ref. 10) impregnated with a thin layer of polymer, first polarizer (ref. 55) and second polarizer (ref. 60), focusing optics for concentrating the light the first polarizer and reducing optics (ref. 128) to focus the light on the substrate wafer (ref. 130). However, Chiu does not disclose the first polarizer that is capable of adjustment during the optical transmission. Tanabe discloses an apparatus for exposing a substrate with a polarizer (ref. 101) capable of adjustment during the optical transmission, a photo mask (ref. 22) patterned with a plurality of optically transparent and optically opaque regions and an electromagnetic radiation beam image reducing means to reduce and focus the diffraction pattern on the substrate. Although Tanabe does not explicitly state the transmissivity level of 0.1%, it is well known that metal layer such as chromium has very low transmissivity level of 0.1% or lower. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide the adjustable polarizer of Tanabe instead of the first polarizer attached to the mask in order to control the polarization direction of light.

6. Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiu in view of Tanabe as applied to claim 1 above, and further in view of Okamoto et al. (Okamoto).

The further difference between the claimed invention and the modified Chiu is the photo

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mask with a spin-on-glass layer for phase shifting and a patterned metal layer for blocking transmission. Okamoto discloses an exposure apparatus with a photo mask with a patterned spin-on-glass layer for phase shifting and a patterned metal layer made of chromium for blocking transmission. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to further modify Chiu with the photo mask of Okamoto in order to obtain phase shifting necessary for the contrast adjustment.

Remarks

7. Due to applicant's arguments against the Matsumoto reference, Matsumoto is withdrawn and Chiu in view of Tanabe is used in rejection. Applicant argues that Okamoto does not use spin-on-glass layer for polarizing but for phase shifting. However, the wording of the claim is "spin-on-glass layer for phase shifting."

Conclusion

8. All claims are rejected.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Kim whose telephone number is (703) 305-0105. The examiner can normally be reached on Monday-Thursday from 6:30 AM to 4:00 PM. The examiner can also be reached on alternate Fridays during the same hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic, can be reached on (703) 308-1436. Any inquiry of a general nature or relating to

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the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956 .

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3/14/00

D. M. M.
Secretary
Patent Examiner
March 14, 2000